

Claims 1-22 (Canceled).

Claim 23 (Previously presented). A method of identifying a maize progeny plant having a restriction fragment introgressed from a *Tripsacum*/teosinte hybrid, said method comprising the following steps:

- (a) isolating the total genomic DNA from the plant;
- (b) digesting said genomic DNA with one to five of the restriction enzymes selected from the group consisting of *EcoRI*, *EcoRV*, *HindIII*, *BamHI* and *MspI*;
- (c) probing said digested genomic DNA with one or more probes, to identify one or more restriction fragments, selected from the group consisting of

BNL5.62, *EcoRI*, 10.3 kb; *npi97*, *HindIII*, 3.9 kb; UMC157, *EcoRI*, 6.5 kb and 3.3 kb; UMC157, *HindIII*, 5.5 kb; UMC157, *BamHI*, 14.0 kb, 8.5 kb and 4.5 kb; UMC11, *BamHI*, 7.0 kb; CSU3, *BamHI*, 10.0 kb and 7.6 kb; UMC67, *EcoRI*, 19.2 kb; UMC67, *BamHI* 13.4 kb, 11.0 kb and 1.6 kb; CSU92, *BamHI*, 13.3 kb and 7.5 kb; *asg62*, *BamHI*, 12.7 kb, 9.7 kb and 6.6 kb; UMC58, *HindIII*, 3.3 kb; CSU164, *EcoRI*, 9.0 kb and 7.0 kb; UMC128, *HindIII*, 6.0 kb; UMC107, *EcoRI*, 7.5.0 kb, 6.3 kb and 6.1 kb; UMC140, *EcoRI*, 4.9 kb; UMC140, *HindIII*, 6.5 kb; *adh1*, *HindIII*, 9.4 kb; *adh1*, *BamHI*, 9.4 kb; UMC161, *HindIII*, 3.3 kb; BNL8.29, *HindIII*, 9.3 kb and 8.3 kb; UMC53, *EcoRI*, 9.4 kb; UMC53, *EcoRV*, 8.4 kb, 3.8 kb and 3.0 kb; UMC6, *EcoRI*, 3.8 kb; UMC6, *HindIII* 9.4 kb; UMC6, *BamHI*, 13.2 kb, 12.7 kb, and 7.0 kb; UMC61, *HindIII*, 3.4 and 2.8 kb *agrr167*, *BamHI*, 5.7 kb, 4.5 kb and 4.0 kb; UMC34, *EcoRI*, 7.5 kb and 5.4 kb; UMC34, *HindIII*, 8.8 kb, 6.5 kb and 5.8 kb; UMC34, *BamHI*, 9.4 kb; UMC135, *HindIII*, 11.6 kb and 10.8 kb; UMC131, *EcoRI*, 10.6 kb, 5.8 kb and 4.3 kb; UMC55, *EcoRI*, 3.9 kb; UMC55, *HindIII*, 4.3 kb; UMC5, *EcoRI*, 5.4 kb; UMC5, *HindIII*, 6.5 kb; UMC49, *BamHI*, 8.2 kb; UMC36, *BamHI*, 4.2 kb; UMC32, *EcoRI*, 5.3 kb; UMC32, *HindIII* 6.7 kb, 6.0 kb, and 2.8 kb; *asg24*, *HindIII*, 7.2 kb and 6.4 kb; UMC121, *EcoRI*, 3.7 kb and 3.2 kb; BNL8.35, *HindIII*, 9.9 kb and 8.7 kb;

*UMC50*, *Bam*HI, 7.8 kb, 6.8 kb, 5.8 kb and 3.8 kb; *UMC42*, *Hind*III, 10.4 kb, 9.2 kb, 8.9 kb, 7.9 kb, 7.6 kb, and 3.7 kb; *npi247*, *Eco*RI, 8.0 kb; *npi247*, *Hind*III 3.0 kb; *UMC10*, *Hind*III, 3.0 kb; *UMC10*, *Eco*RI, 6.5 kb and 5.5 kb; *UMC102*, *Eco*RI, 2.7 kb; *BNL6.06*, *Eco*RI, 6.8 kb; *CSU240*, *Eco*RI, 10.6 kb, 4.5 kb and 3.3 kb; *BNL5.37*, *Hind*III, 10.3 kb, 5.8 kb and 3.5 kb; *npi296*, *Eco*RI, 7.9 kb; *UMC3*, *Eco*RI 2.5 kb and 2.0 kb; *npi212*, *Hind*III, 4.3 kb; *npi212*, *Bam*HI, 5.4 kb; *UMC39*, *Eco*RI, 12.2 kb, 9.2 kb, 7.8 kb and 7.1 kb; *phi10080*, *Bam*HI, 9.7 kb; *UMC63*, *Hind*III, 9.5 kb and 4.3 kb; *CSU303*, *Eco*RI, 10.0 kb; *UMC96*, *Hind*III, 11.8 kb, 6.4 kb and 5.5 kb; *UMC96*, *Bam*HI, 7.5 kb; *UMC2*, *Eco*RI, 11.8 kb, 10.4 kb, 8.0 kb and 3.9 kb; *CSU25*, *Hind*III, 5.2 kb, 4.5 and 4.2 kb; *agrr115*, *Eco*RI, 8.0 kb and 5.4 kb; *agrr115*, *Bam*HI, 5.4 kb and 3.5 kb; *phi20725*, *Eco*RI, 10.3 kb, 9.7 kb and 7.2 kb; *phi20725*, *Hind*III, 1.5 kb; *UMC31*, *Eco*RI, 5.8 kb and 2.0 kb; *UMC31*, *Bam*HI 6.5 kb; *UMC55*, *Eco*RI, 3.9 kb; *UMC55*, *Hind*III, 4.3 kb; *CSU235*, *Hind*III, 6.8 kb and 3.0 kb; *CSU585*, *Hind*III, 8.3 kb and 6.1 kb; *BNL5.46*, *Hind*III, 13.7 kb, 10.5 kb, 9.7 kb and 5.1 kb; *agrr321*, *Bam*HI, 5.5 kb; *agrr89*, *Hind*III, 7.1 kb; *npi386*, *Hind*III, 12.6 kb, 9.3 kb and 8.2 kb; *UMC42*, *Hind*III, 19.2 kb, 10.3 kb, 8.9 kb, 7.6 kb, 3.7 kb and 3.0 kb; *tda62*, *Bam*HI, 5.5 kb, 5.2 kb, 4.8 kb and 4.2 kb; *BNL5.71*, *Eco*RV, 11.3 kb, 6.8 kb, and 5.7 kb; *UMC156*, *Hind*III, 3.0 kb; *UMC66*, *Eco*RI, 10.5 kb; *UMC66*, *Bam*HI, 3.7 kb and 2.4 kb; *UMC19*, *Bam*HI, 12.3 kb; *UMC104*, *Hind*III, 12.4 kb, 11.6 kb and 7.5 kb; *UMC104*, *Bam*HI, 9.4 kb; *UMC133*, *Hind*III, 10.6 kb, 9.9 kb, 9.2 kb and 7.7 kb; *UMC52*, *Bam*HI, 8.7 kb, 6.9 kb, 3.8 kb, 3.0 kb and 2.0 kb; *BNL15.07*, *Hind*III, 2.9 kb and 2.7 kb; *npi409*, *Eco*RI, 9.4 kb; *npi409*, *Hind*III, 10.4 kb, 9.0 kb and 3.9 kb; *UMC147*, *Hind*III, 16.3 kb, 3.8 kb and 2.4 kb; *asg73*, *Eco*RI, 3.8 kb; *UMC90*, *Hind*III, 7.7 kb, 6.5 kb, 2.8 kb and 1.6 kb; *UMC90*, *Bam*HI, 9.0 kb; *UMC72*, *Eco*RI, 8.5 kb; *UMC27*, *Hind*III, 8.3 kb and 4.5 kb; *UMC27*, *Bam*HI, 6.5 kb; *UMC43*, *Bam*HI, 9.7 kb, 7.3 kb and 5.7 kb; *tda37*, *Bam*HI, 9.0 kb, 8.0 kb and 6.4 kb; *UMC43*, *Bam*HI, 9.7 kb, 7.3

kb and 5.7 kb; UMC40, *Bam*HI, 7.2 kb, 4.7 kb and 4.3 kb; BNL7.71, *Hind*III, 10.6 kb; BNL5.71, *Bam*HI, 11.3 kb, 6.8 kb and 5.7 kb; tda62, *Bam*HI, 6.5 kb and 5.5 kb; UMC68, *Hind*III, 6.0 kb; UMC104, *Hind*III, 12.4 kb, 11.6 kb and 7.5 kb; UMC104, *Bam*HI, 9.4 kb; phi10017, *Bam*HI, 15.1 kb and 9.5 kb; tda50, *Bam*HI, 8.5 kb; np1373, *Hind*III, 6.5 kb, 5.6 kb, 5.1 kb and 3.0 kb; tda204, *Bam*HI, 4.0 kb; np1393, *Eco*RI, 12.1 kb, 8.5 kb, 7.0 kb and 5.6 kb; UMC65, *Hind*III, 2.9 kb; UMC46, *Eco*RI, 6.5 kb and 5.6 kb; asg7, *Hind*III, 6.3 kb; UMC28, *Hind*III, 15.8 kb and 11.9 kb; UMC28, *Bam*HI, 9.9 kb, 7.6 kb and 6.6 kb; UMC134, *Hind*III, 7.5 kb and 4.7 kb; asg8, *Hind*III, 10.8 kb, 8.7 kb and 8.4 kb; phi20581, *Hind*III, 4.2 kb; O2, *Eco*RI, 9.4 kb; asg34, *Hind*III, 4.5 kb; BNL15.40, *Hind*III, 5.8 kb; UMC116, *Eco*RI, 9.5 kb; UMC110, *Bam*HI, 10.6 kb, 4.9 kb and 3.9 kb; BNL8.32, *Hind*III, 8.9 kb, 7.4 kb and 7.1 kb; BNL14.07, *Eco*RI, 6.4 kb; UMC80, *Hind*III, 10.7 kb, 8.2 kb and 2.4 kb; BNL16.06, *Eco*RI, 6.8 kb and 1.9 kb; BNL16.06, *Hind*III, 5.7 kb, 3.0 kb and 1.6 kb; phi20020, *Hind*III, 7.8 kb, 6.6 kb and 5.1 kb; np114, *Hind*III, 10.0 kb, 8.8 kb and 6.3 kb; BNL9.11, *Hind*III, 3.4 kb; UMC103, *Hind*III, 6.9 kb; UMC124, *Hind*III, 8.0 and 7.0; UMC124, *Bam*HI, 6.6 kb, 2.6 kb and 1.6 kb; UMC120, *Hind*III, 3.2 kb, 2.3 kb and 1.4 kb; UMC89, *Eco*RI, 7.3 kb; UMC89, *Hind*III, 7.3 kb; UMC89, *Bam*HI, 9.5 kb, 6.0 kb, 5.2 kb and 4.5 kb; UMC89, *Msp*I, 6.7 kb and 5.8 kb; BNL12.30, *Eco*RI, 3.5 kb; UMC48, *Hind*III, 6.2 kb, 5.3 kb, 4.7 kb, 4.2 kb and 3.5 kb; UMC53, *Eco*RI, 3.8 kb and 3.0 kb; UMC53, *Eco*RV, 8.4 kb; np1268, *Bam*HI, 6.4 kb; UMC7, *Bam*HI, 4.2 kb; UMC3, *Eco*RI, 3.5 kb and 2.0 kb; phi10005, *Eco*RI, 15.0 kb and 1.6 kb; UMC113, *Eco*RI, 5.9 kb and 5.4 kb; UMC113, *Bam*HI, 12.8 kb, 11.8 kb and 10.5 kb; UMC192, *Hind*III, 11.4 kb and 6.4 kb; wx (waxy), *Hind*III, 21.0 kb; UMC105, *Eco*RI, 3.9 kb; CSU147, *Hind*III 5.9 kb; BNL5.10, *Hind*III, 6.1 kb and 4.4 kb; UMC114, *Bam*HI, 12.6 kb, 11.5 kb, 10.0 kb, 8.8 kb, 7.5 kb and 6.5 kb; UMC95, *Eco*RI, 5.6 kb; UMC95, *Hind*III, 7.7 kb, 7.3 kb, 4.8 kb, 4.5 kb 4.1 kb and 1.7 kb; UMC95,

*Bam*HI, 15.0 kb and 9.0 kb; *asg44*, *Eco*RI, 5.3 kb; *CSU61*, *Eco*RI, 8.1 kb and 4.8 kb; *BNL7.57*, *Bam*HI, 11.6 kb and 5.9 kb; *CSU54*, *Eco*RI, 14.7 kb and 12.6 kb; *phi20075*, *Eco*RI, 7.1 kb; *npi285*, *Eco*RI, 12.4 kb, 9.4 kb and 6.0 kb; *KSU5*, *Eco*RI, 9.8 kb, 7.6 kb, 6.1 kb, 3.8 kb and 3.5 kb; *UMC130*, *Eco*RI, 13.5 kb and 7.0 kb; *UMC130*, *Hind*III, 4.8 kb and 3.2 kb; *UMC130*, *Bam*HI, 3.2 kb; *UMC64*, *Hind*III, 3.3 kb; *UMC152*, *Hind*III, 12.4 kb, 7.1 kb and 5.6 kb; *phi06005*, *Eco*RI, 12.8 kb; *UMC163*, *Hind*III, 7.0 kb, 4.8 kb; 3.0 kb; 2.6 kb and 2.3 kb; *UMC44*, *Hind*III, 9.8 kb, 8.7 kb, 7.2 kb, 5.5 kb and 4.0 kb; *BNL10.13*, *Hind*III, 10.8 kb; *npi306*, *Hind*III, 7.0 kb; *pmt1*, *Hind*III, 2.3 kb; *pmt2*, *Hind*III, 2.8 kb and 2.1 kb; *pmt5*, *Hind*III, 12.3 kb, 8.1 kb, 3.6 kb, 3.2 kb and 2.5 kb; *tda48*, *Hind*III, 8.2 kb; *tda53*, *Hind*III, 3.8 kb and 2.2 kb; *tda168*, *Eco*RI, 3.6 kb; *tda16*, *Hind*III, 4.3 kb; and *tda17*, *Hind*III, 7.0 kb; *tda250*, *Bam*HI, 4.0 kb, recited as marker-enzyme fragment size;

(d) determining the presence of one or more of the restriction fragments.

Claims 24-43 (Canceled).

Claim 44 (New). A method for producing a maize plant, wherein said maize plant is produced by:

- (a) cross pollinating a maize female plant with either a (*Tripsacum* X teosinte) male plant or a (teosinte X *Tripsacum*) male plant to produce a trigeneric hybrid maize plant;
- (b) backcrossing said trigeneric hybrid plant produced in step (a) at least once to a maize plant;
- (c) screening said maize plant produced in step (b) for the presence of one or more restriction fragments according to claim 23.

Claim 45 (New). A maize plant, seed, pollen, all derivatives, subsequent generations, variants, mutants, modifications, and cellular and molecular components produced by the method of claim 44.

Claim 46 (New). A maize plant produced by the method of claim 44 whereby the roots of said plant contain aerenchyma.

Claim 47 (New). A maize plant produced by the method of claim 44 whereby said plant is drought tolerant.

Claim 48 (New). A maize plant produced by the method of claim 44 whereby said plant is tolerant to corn rootworm.

Claim 49 (New). A maize plant produced by the method of claim 44 further comprising a novel band identified by SSR probe phi123.

Claim 50 (New). A maize plant produced by the method of claim 44 further comprising a novel band identified by SSR probe bnlg2235.

Claim 51 (New). A maize plant produced by the method of claim 44 further comprising a novel band identified by SSR probe dupSSR23.

Claim 52 (New). A maize plant produced by the method of claim 44 further comprising a novel band identified by SSR probe bnlg1805.

Claim 53 (New). A method for producing a maize plant, wherein said maize plant is produced by:

- (a) cross pollinating either a (*Tripsacum* X teosinte) female plant or a (teosinte X *Tripsacum*) female plant with a maize male plant to produce a trigeneric hybrid plant;
- (b) backcrossing said trigeneric hybrid plant produced in step (a) at least once to a maize plant;
- (c) screening said maize plant produced in step (b) for the presence of one or more restriction fragments according to claim 23.

Claim 54 (New). A maize plant, seed, pollen, all derivatives, subsequent generations, variants, mutants, modifications, and cellular and molecular components produced by the method of claim 53.

Claim 55 (New). A maize plant produced by the method of claim 53 whereby the roots of said plant contain aerenchyma.

Claim 56 (New). A maize plant produced by the method of claim 53 whereby said plant is drought tolerant.

Claim 57 (New). A maize plant produced by the method of claim 53 whereby said plant is tolerant to corn rootworm.

Claim 58 (New). A maize plant produced by the method of claim 53 further comprising a novel band identified by SSR probe phi123.

Claim 59 (New). A maize plant produced by the method of claim 53 further comprising a novel band identified by SSR probe bnlg2235.

Claim 60 (New). A maize plant produced by the method of claim 53 further comprising a novel band identified by SSR probe dupSSR23.

Claim 61 (New). A maize plant produced by the method of claim 53 further comprising a novel band identified by SSR probe bnlg1805.

Claim 62 (New). A method for producing a hybrid maize plant, wherein said plant is produced by:

- (a) cross pollinating a maize female plant with either a (*Tripsacum* X teosinte) male plant or a (teosinte X *Tripsacum*) male plant to produce a hybrid maize plant;
- (b) backcrossing said hybrid maize plant produced in step (a) at least once to a (*Tripsacum* X teosinte) plant or a (teosinte X *Tripsacum*) plant;
- (c) screening said maize plant produced in step (b) for the presence of one or more restriction fragments according to claim 23.

Claim 63 (New). A maize plant, seed, pollen, all derivatives, subsequent generations, variants, mutants, modifications, and cellular and molecular components produced by the method of claim 62.

Claim 64 (New). A maize plant produced by the method of claim 62 whereby the roots of said plant contain aerenchyma.

Claim 65 (New). A maize plant produced by the method of claim 62 whereby said plant is drought tolerant.

Claim 66 (New). A maize plant produced by the method of claim 62 whereby said plant is tolerant to corn rootworm.

Claim 67 (New). A maize plant produced by the method of claim 62 further comprising a novel band identified by SSR probe phi123.

Claim 68 (New). A maize plant produced by the method of claim 62 further comprising a novel band identified by SSR probe bnlg2235.

Claim 69 (New). A maize plant produced by the method of claim 62 further comprising a novel band identified by SSR probe dupSSR23.

Claim 70 (New). A maize plant produced by the method of claim 62 further comprising a novel band identified by SSR probe bnlg1805.

Claim 71 (New). A method of identifying one or more molecular marker loci associated with a phenotypic trait of interest in maize, said method comprising the following steps:

- (a) screening a population of maize plants introgressed by *Tripsacum*-teosinte or teosinte-*Tripsacum* to determine expression of said phenotypic trait of interest;
- (b) distinguishing plants that exhibit said trait of interest according to step (a) from plants that do not exhibit said trait of interest according step (a);
- (c) genotyping each plant in step (b) with the RFLP marker-restriction enzyme combinations combiselected from the group consisting of:

BNL5.62, *EcoRI*; np197, *HindIII*; UMC157, *EcoRI*; UMC157, *HindIII*; UMC157, *BamHI*; UMC11, *BamHI*; CSU3, *BamHI*; UMC67, *EcoRI*; UMC67, *BamHI*; CSU92, *BamHI*; asg62, *BamHI*; UMC58, *HindIII*; CSU164, *EcoRI*; UMC128, *HindIII*; UMC107, *EcoRI*; UMC140, *EcoRI*; UMC140, *HindIII*; adh1, *HindIII*; adh1, *BamHI*; UMC161, *HindIII*; BNL8.29, *HindIII*; UMC53, *EcoRI*; UMC53, *EcoRV*; UMC6, *EcoRI*; UMC6, *HindIII*; UMC6, *BamHI*; UMC61, *HindIII*; *BamHI*; UMC34, *EcoRI*; UMC34, *HindIII*; UMC34, *BamHI*; UMC135, *HindIII*; UMC131, *EcoRI*; UMC55, *EcoRI*; UMC55, *HindIII*; UMC5, *EcoRI*; UMC5, *HindIII*; UMC49, *BamHI*; UMC36, *BamHI*; UMC32, *EcoRI*; UMC32, *HindIII*; asg24, *HindIII*; UMC121, *EcoRI*; BNL8.35, *HindIII*; UMC50, *BamHI*; UMC42, *HindIII*; np1247, *EcoRI*; np1247, *HindIII*; UMC10, *HindIII*; UMC10, *EcoRI*; UMC102, *EcoRI*; BNL6.06, *EcoRI*; CSU240, *EcoRI*; BNL5.37, *HindIII*; np1296, *EcoRI*; UMC3, *EcoRI*; np1212, *HindIII*; np1212, *BamHI*; UMC39, *EcoRI*; *phi10080*, *BamHI*; UMC63, *HindIII*; CSU303, *EcoRI*; UMC96, *HindIII*; UMC96, *BamHI*, 7.5 kb; UMC2, *EcoRI*; CSU25, *HindIII*; agr115, *EcoRI*; agr115, *BamHI*; *phi20725*, *EcoRI*; *phi20725*, *HindIII*; UMC31, *EcoRI*; UMC31, *BamHI*; UMC55, *EcoRI*; UMC55, *HindIII*; CSU235, *HindIII*; CSU585, *HindIII*; BNL5.46, *HindIII*; agr321, *BamHI*; agr89, *HindIII*; np1386, *HindIII*; UMC42, *HindIII*; *tda62*, *BamHI*; BNL5.71, *EcoRV*; UMC156, *HindIII*; UMC66, *EcoRI*; UMC66, *BamHI*; UMC19, *BamHI*; UMC104, *HindIII*; UMC104, *BamHI*; UMC133, *HindIII*; UMC52, *BamHI*; BNL15.07, *HindIII*; np1409, *EcoRI*; np1409, *HindIII*; UMC147, *HindIII*; asg73, *EcoRI*; UMC90, *HindIII*; UMC90, *BamHI*; UMC72, *EcoRI*; UMC27, *HindIII*; UMC27, *BamHI*; UMC43; *tda37*, *BamHI*; UMC43, *BamHI*; UMC40, *BamHI*; BNL7.71, *HindIII*; BNL5.71, *BamHI*; *tda62*, *BamHI*; UMC68, *HindIII*; UMC104, *HindIII*; UMC104, *BamHI*; *phi10017*, *BamHI*; *tda50*,



*Bam*HI; *npi*373, *Hind*III; *tda*204, *Bam*HI; *npi*393, *Eco*RI; UMC65, *Hind*III; UMC46, *Eco*RI; *asg*7, *Hind*III; UMC28, *Hind*III; UMC28, *Bam*HI; UMC134, *Hind*III; *asg*8, *Hind*III; *phi*20581, *Hind*III; O2, *Eco*RI; *asg*34, *Hind*III; BNL15.40, *Hind*III; UMC116, *Eco*RI; UMC110, *Bam*HI; BNL8.32, *Hind*III; BNL14.07, *Eco*RI; UMC80, *Hind*III; BNL16.06, *Eco*RI; BNL16.06, *Hind*III; *phi*20020, *Hind*III; *npi*114, *Hind*III; BNL9.11, *Hind*III; UMC103, *Hind*III; UMC124, *Hind*III; UMC124, *Bam*HI; UMC120, *Hind*III; UMC89, *Eco*RI; UMC89, *Hind*III; UMC89, *Bam*HI; UMC89, *Msp*I; BNL12.30, *Eco*RI; UMC48, *Hind*III; UMC53, *Eco*RI; UMC53, *Eco*RV; *npi*268, *Bam*HI; UMC7, *Bam*HI; UMC3, *Eco*RI; *phi*10005, *Eco*RI; UMC113, *Eco*RI; UMC113, *Bam*HI; UMC192, *Hind*III; *wx* (*waxy*), *Hind*III; UMC105, *Eco*RI; CSU147, *Hind*III; BNL5.10, *Hind*III; UMC114, *Bam*HI; UMC95, *Eco*RI; UMC95, *Hind*III; UMC95, *Bam*HI; *asg*44, *Eco*RI; CSU61, *Eco*RI; BNL7.57, *Bam*HI; CSU54, *Eco*RI; *phi*20075, *Eco*RI; *npi*285, *Eco*RI; KSU5, *Eco*RI; UMC130, *Eco*RI; UMC130, *Hind*III; UMC130, *Bam*HI; UMC64, *Hind*III; UMC152, *Hind*III; *phi*06005, *Eco*RI; UMC163, *Hind*III; UMC44, *Hind*III; BNL10.13, *Hind*III; *npi*306, *Hind*III; *pmt*1, *Hind*III; *pmt*2, *Hind*III; *pmt*5, *Hind*III; *tda*48, *Hind*III; *tda*53, *Hind*III; *tda*168, *Eco*RI; *tda*16, *Hind*III; *tda*17, *Hind*III; *tda*250, *Bam*HI;

- (d) determining the presence of one or more restriction fragments in said maize plants according to step (c) that correspond to the restriction fragments recited as marker-enzymes restriction fragment size from the group consisting of :

BNL5.62, *Eco*RI, 10.3 kb; *npi*97, *Hind*III, 3.9 kb; UMC157, *Eco*RI, 6.5 kb and 3.3 kb; UMC157, *Hind*III, 5.5 kb; UMC157, *Bam*HI, 14.0 kb, 8.5 kb and 4.5 kb; UMC11, *Bam*HI, 7.0 kb; CSU3, *Bam*HI, 10.0 kb and 7.6 kb; UMC67, *Eco*RI, 19.2 kb; UMC67, *Bam*HI 13.4 kb, 11.0 kb and 1.6 kb; CSU92, *Bam*HI, 13.3 kb and 7.5 kb; *asg*62, *Bam*HI,

12.7 kb, 9.7 kb and 6.6 kb; UMC58, *HindIII*, 3.3 kb; CSU164, *EcoRI*, 9.0 kb and 7.0 kb; UMC128, *HindIII*, 6.0 kb; UMC107, *EcoRI*, 7.5.0 kb, 6.3 kb and 6.1 kb; UMC140, *EcoRI*, 4.9 kb; UMC140, *HindIII*, 6.5 kb; *adh1*, *HindIII*, 9.4 kb; *adh1*, *BamHI*, 9.4 kb; UMC161, *HindIII*, 3.3 kb; BNL8.29, *HindIII*, 9.3 kb and 8.3 kb; UMC53, *EcoRI*, 9.4 kb; UMC53, *EcoRV*, 8.4 kb, 3.8 kb and 3.0 kb; UMC6, *EcoRI*, 3.8 kb; UMC6, *HindIII* 9.4 kb; UMC6, *BamHI*, 13.2 kb, 12.7 kb, and 7.0 kb; UMC61, *HindIII*, 3.4 and 2.8 kb; *agrr167*, *BamHI*, 5.7 kb, 4.5 kb and 4.0 kb; UMC34, *EcoRI*, 7.5 kb and 5.4 kb; UMC34, *HindIII*, 8.8 kb, 6.5 kb and 5.8 kb; UMC34, *BamHI*, 9.4 kb; UMC135, *HindIII*, 11.6 kb and 10.8 kb; UMC131, *EcoRI*, 10.6 kb, 5.8 kb and 4.3 kb; UMC55, *EcoRI*, 3.9 kb; UMC55, *HindIII*, 4.3 kb; UMC5, *EcoRI*, 5.4 kb; UMC5, *HindIII*, 6.5 kb; UMC49, *BamHI*, 8.2 kb; UMC36, *BamHI*, 4.2 kb; UMC32, *EcoRI*, 5.3 kb; UMC32, *HindIII* 6.7 kb, 6.0 kb, and 2.8 kb; *asg24*, *HindIII*, 7.2 kb and 6.4 kb; UMC121, *EcoRI*, 3.7 kb and 3.2 kb; BNL8.35, *HindIII*, 9.9 kb and 8.7 kb; UMC50, *BamHI*, 7.8 kb, 6.8 kb, 5.8 kb and 3.8 kb; UMC42, *HindIII*, 10.4 kb, 9.2 kb, 8.9 kb, 7.9 kb, 7.6 kb, and 3.7 kb; *npi247*, *EcoRI*, 8.0 kb; *npi247*, *HindIII* 3.0 kb; UMC10, *HindIII*, 3.0 kb; UMC10, *EcoRI*, 6.5 kb and 5.5 kb; UMC102, *EcoRI*, 2.7 kb; BNL6.06, *EcoRI*, 6.8 kb; CSU240, *EcoRI*, 10.6 kb, 4.5 kb and 3.3 kb; BNL5.37, *HindIII*, 10.3 kb, 5.8 kb and 3.5 kb; *npi296*, *EcoRI*, 7.9 kb; UMC3, *EcoRI* 2.5 kb and 2.0 kb; *npi212*, *HindIII*, 4.3 kb; *npi212*, *BamHI*, 5.4 kb; UMC39, *EcoRI*, 12.2 kb, 9.2 kb, 7.8 kb and 7.1 kb; *phi10080*, *BamHI*, 9.7 kb; UMC63, *HindIII*, 9.5 kb and 4.3 kb; CSU303, *EcoRI*, 10.0 kb; UMC96, *HindIII*, 11.8 kb, 6.4 kb and 5.5 kb; UMC96, *BamHI*, 7.5 kb; UMC2, *EcoRI*, 11.8 kb, 10.4 kb, 8.0 kb and 3.9 kb; CSU25, *HindIII*, 5.2 kb, 4.5 and 4.2 kb; *agrr115*, *EcoRI*. 8.0 kb and 5.4 kb; *agrr115*, *BamHI*, 5.4 kb and 3.5 kb; *phi20725*, *EcoRI*, 10.3 kb, 9.7 kb and 7.2 kb; *phi20725*,

*HindIII*, 1.5 kb; UMC31, *EcoRI*, 5.8 kb and 2.0 kb; *UMC31*, *BamHI* 6.5 kb; UMC55, *EcoRI*, 3.9 kb; UMC55, *HindIII*, 4.3 kb; CSU235, *HindIII*, 6.8 kb and 3.0 kb; CSU585, *HindIII*, 8.3 kb and 6.1 kb; BNL5.46, *HindIII*, 13.7 kb, 10.5 kb, 9.7 kb and 5.1 kb; *agrr321*, *BamHI*, 5.5 kb; *agrr89*, *HindIII*, 7.1 kb; *npi386*, *HindIII*, 12.6 kb, 9.3 kb and 8.2 kb; *UMC42*, *HindIII*, 19.2 kb, 10.3 kb 8.9 kb, 7.6 kb, 3.7 kb and 3.0 kb; *tda62*, *BamHI*, 5.5 kb, 5.2 kb, 4.8 kb and 4.2 kb; BNL5.71, *EcoRV*, 11.3 kb, 6.8 kb, and 5.7 kb; UMC156, *HindIII*, 3.0 kb; UMC66, *EcoRI*, 10.5 kb; UMC66, *BamHI*, 3.7 kb and 2.4 kb; UMC19, *BamHI*, 12.3 kb; UMC104, *HindIII*, 12.4 kb, 11.6 kb and 7.5 kb; UMC104, *BamHI*, 9.4 kb; UMC133, *HindIII*, 10.6 kb, 9.9 kb, 9.2 kb and 7.7 kb; UMC52, *BamHI*, 8.7 kb, 6.9 kb, 3.8 kb, 3.0 kb and 2.0 kb; BNL15.07, *HindIII*, 2.9 kb and 2.7 kb; *npi409*, *EcoRI*, 9.4 kb; *npi409*, *HindIII*, 10.4 kb, 9.0 kb and 3.9 kb; UMC147, *HindIII*, 16.3 kb, 3.8 kb and 2.4 kb; *asg73*, *EcoRI*, 3.8 kb; UMC90, *HindIII*, 7.7 kb, 6.5 kb, 2.8 kb and 1.6 kb; UMC90, *BamHI*, 9.0 kb; *UMC72*, *EcoRI*, 8.5 kb; UMC27, *HindIII*, 8.3 kb and 4.5 kb; UMC27, *BamHI*, 6.5 kb; UMC43, *BamHI*, 9.7 kb, 7.3 kb and 5.7 kb; *tda37*, *BamHI*, 9.0 kb, 8.0 kb and 6.4 kb; UMC43, *BamHI*, 9.7 kb, 7.3 kb and 5.7 kb; UMC40, *BamHI*, 7.2 kb, 4.7 kb and 4.3 kb; BNL7.71, *HindIII*, 10.6 kb; BNL5.71, *BamHI*, 11.3 kb, 6.8 kb and 5.7 kb; *tda62*, *BamHI*, 6.5 kb and 5.5 kb; UMC68, *HindIII*, 6.0 kb; UMC104, *HindIII*, 12.4 kb, 11.6 kb and 7.5 kb; UMC104, *BamHI*, 9.4 kb; *phi10017*, *BamHI*, 15.1 kb and 9.5 kb; *tda50*, *BamHI*, 8.5 kb; *npi373*, *HindIII*, 6.5 kb, 5.6 kb, 5.1 kb and 3.0 kb; *tda204*, *BamHI*, 4.0 kb; *npi393*, *EcoRI*, 12.1 kb, 8.5 kb, 7.0 kb and 5.6 kb; UMC65, *HindIII*, 2.9 kb; UMC46, *EcoRI*, 6.5 kb and 5.6 kb; *asg7*, *HindIII*, 6.3 kb; UMC28, *HindIII*, 15.8 kb and 11.9 kb; UMC28, *BamHI*, 9.9 kb, 7.6 kb and 6.6 kb; UMC134, *HindIII*, 7.5 kb and 4.7 kb; *asg8*, *HindIII*, 10.8 kb, 8.7 kb and 8.4 kb; *phi20581*, *HindIII*,

4.2 kb; O2, *EcoRI*, 9.4 kb; asg34, *HindIII*, 4.5 kb; BNL15.40, *HindIII*, 5.8 kb; UMC116, *EcoRI*, 9.5 kb; UMC110, *BamHI*, 10.6 kb, 4.9 kb and 3.9 kb; BNL8.32, *HindIII*, 8.9 kb, 7.4 kb and 7.1 kb; BNL14.07, *EcoRI*, 6.4 kb; UMC80, *HindIII*, 10.7 kb, 8.2 kb and 2.4 kb; BNL16.06, *EcoRI*, 6.8 kb and 1.9 kb; BNL16.06, *HindIII*, 5.7 kb, 3.0 kb and 1.6 kb; phi20020, *HindIII*, 7.8 kb, 6.6 kb and 5.1 kb; np114, *HindIII*, 10.0 kb, 8.8 kb and 6.3 kb; BNL9.11, *HindIII*, 3.4 kb; UMC103, *HindIII*, 6.9 kb; UMC124, *HindIII*, 8.0 and 7.0; UMC124, *BamHI*, 6.6 kb, 2.6 kb and 1.6 kb; UMC120, *HindIII*, 3.2 kb, 2.3 kb and 1.4 kb; UMC89, *EcoRI*, 7.3 kb; UMC89, *HindIII*, 7.3 kb; UMC89, *BamHI*, 9.5 kb, 6.0 kb, 5.2 kb and 4.5 kb; UMC89, *MspI*, 6.7 kb and 5.8 kb; BNL12.30, *EcoRI*, 3.5 kb; UMC48, *HindIII*, 6.2 kb, 5.3 kb, 4.7 kb, 4.2 kb and 3.5 kb; UMC53, *EcoRI*, 3.8 kb and 3.0 kb; UMC53, *EcoRV*, 8.4 kb; np1268, *BamHI*, 6.4 kb; UMC7, *BamHI*, 4.2 kb; UMC3, *EcoRI*, 3.5 kb and 2.0 kb; phi10005, *EcoRI*, 15.0 kb and 1.6 kb; UMC113, *EcoRI*, 5.9 kb and 5.4 kb; UMC113, *BamHI*, 12.8 kb, 11.8 kb and 10.5 kb; UMC192, *HindIII*, 11.4 kb and 6.4 kb; wx (waxy), *HindIII*, 21.0 kb; UMC105, *EcoRI*, 3.9 kb; CSU147, *HindIII* 5.9 kb; BNL5.10, *HindIII*, 6.1 kb and 4.4 kb; UMC114, *BamHI*, 12.6 kb, 11.5 kb, 10.0 kb, 8.8 kb, 7.5 kb and 6.5 kb; UMC95, *EcoRI*, 5.6 kb; UMC95, *HindIII*, 7.7 kb, 7.3 kb, 4.8 kb, 4.5 kb 4.1 kb and 1.7 kb; UMC95, *BamHI*, 15.0 kb and 9.0 kb; asg44, *EcoRI*, 5.3 kb; CSU61, *EcoRI*, 8.1 kb and 4.8 kb; BNL7.57, *BamHI*, 11.6 kb and 5.9 kb; CSU54, *EcoRI*, 14.7 kb and 12.6 kb; phi20075, *EcoRI*, 7.1 kb; np1285, *EcoRI*, 12.4 kb, 9.4 kb and 6.0 kb; KSU5, *EcoRI*, 9.8 kb, 7.6 kb, 6.1 kb, 3.8 kb and 3.5 kb; UMC130, *EcoRI*, 13.5 kb and 7.0 kb; UMC130, *HindIII*, 4.8 kb and 3.2 kb; UMC130, *BamHI*, 3.2 kb; UMC64, *HindIII*, 3.3 kb; UMC152, *HindIII*, 12.4 kb, 7.1 kb and 5.6 kb; phi06005, *EcoRI*, 12.8 kb; UMC163, *HindIII*, 7.0 kb, 4.8 kb; 3.0 kb; 2.6 kb and 2.3 kb; UMC44, *HindIII*, 9.8 kb, 8.7

kb, 7.2 kb, 5.5 kb and 4.0 kb; BNL10.13, *HindIII*, 10.8 kb; np1306, *HindIII*, 7.0 kb; pmt1, *HindIII*, 2.3 kb; pmt2, *HindIII*, 2.8 kb and 2.1 kb; pmt5, *HindIII*, 12.3 kb, 8.1 kb, 3.6 kb, 3.2 kb and 2.5 kb; tda48, *HindIII*, 8.2 kb; tda53, *HindIII*, 3.8 kb and 2.2 kb; tda168, *EcoRI*, 3.6 kb; tda16, *HindIII*, 4.3 kb; and tda17, *HindIII*, 7.0 kb; tda250, *BamHI*, 4.0 kb;

- (e) identifying one or more marker-enzyme restriction fragments recited in step (d) that are present in every maize plant that exhibits said trait of interest according to step (b) and are absent from every maize plant that does not exhibit said trait of interest according to step (b), thereby identifying one or more molecular marker loci associated with said trait of interest;

Claim 72 (New). A maize plant, seed, pollen, all derivatives, subsequent generations, variants, mutants, modifications, and cellular and molecular components expressing a phenotypic trait identified by the method of claim 71.

Claim 73 (New). A maize plant identified by the method of claim 71 whereby the roots of said plant contain aerenchyma.

Claim 74 (New). A maize plant identified by the method of claim 71 whereby said plant is drought tolerant.

Claim 75 (New). A maize plant identified by the method of claim 71 whereby said plant is tolerant to corn rootworm.

Claim 76 (New). A maize plant identified by the method of claim 71 further comprising a novel band identified by SSR probe phi123.

Claim 77 (New). A maize plant identified by the method of claim 71 further comprising a novel band identified by SSR probe bnlg2235.

Claim 78 (New). A maize plant identified by the method of claim 71 further comprising a novel band identified by SSR probe dupSSR23.

Claim 79 (New). A maize plant identified by the method of claim 71 further comprising a novel band identified by SSR probe bnlg1805.